Differentiating Dengue from Rickettsia

Event	Spotted Fever Group Rickettsia	Typhus Group Rickettsia	Ehrlichia / Anaplasma
Disease and Agent	Rocky Mountain spotted fever (RMSF) *Rickettsia rickettsii*	Murine typhus *Rickettsia typhi*	Ehrlichiosis *Ehrlichia spp.*
	African Tick Bite Fever (ATBF) *Rickettsia africae*	Epidemic typhus *Rickettsia prowazekii*	Anaplasmosis *Anaplasma phagocytophilum*
Transmission	Tick bite	• Murine–fleas • Epidemic- human body lice	Tick bite
Incubation	2–21 days	10–14 days	2–14 days
Differentiating Features	• Maculopapular rash in 80% of RMSF cases • Eschars are common in ATBF; may also have maculopapular rash	• Maculopapular rash in 20%–60% of murine and epidemic typhus cases • Cough and stupor more common with epidemic typhus	• Organism in white blood cells and often causes leukopenia • Maculopapular rash in about 30% of ehrlichiosis cases; rash is rare in anaplasmosis
Complications	• ARDS, DIC, multisystem organ failure, and digital necrosis with RMSF, Case fatality of 20%–80% among untreated cases. • Rare complications of peripheral neuropathy and myocarditis in ATBF cases; ATBF is usually self-limited	• Both diseases can be severe and fatal with respiratory distress, and organ failure • Case fatality rates in untreated epidemic typhus cases can be as high as 30%, while usually < 5% with murine typhus	• Mental status changes, neurological impairment, and organ failure especially in immunocompromised patients • Ehrlichiosis is more likely to be fatal than anaplasmosis, but case fatality rates < 5% for both
Diagnosis [1]	Paired serum indirect immunofluorescence assay (IFA) for IgG	Paired serum IFA for IgG	PCR in acute whole blood
	Skin biopsy of rash	Skin biopsy of rash	Paired serum IFA for IgG
Treatment (for adults and children of all ages)	Doxycycline	Doxycycline	Doxycycline